

Claims

What is claimed is:

1. A method of designing a system including an element, wherein the element connects a plurality of components, the method comprising: establishing a system design including the plurality of components; generating a diagram associated with the system design, wherein the wiring diagram includes the element and the plurality of components; establishing guidelines for designing the system; and automatically determining a routing pattern in the system for the element based on the wiring and the guidelines.

2. The method of claim 1, wherein the element includes one or more connections, the step of determining a routing pattern includes the steps of:

determining one or more sets of one or more connections that can be bundled; and

determining a routing pattern in the element for each bundle.

3. The method of claim 1, further including the steps of: receiving one or more revised guidelines for designing the structure; and

determining a revised routing pattern in the system for the element based on the diagram and the revised guidelines.

4. The method of claim 1, further including:

providing a drawing illustrating the structure and the determined routing patterns.

5. The method of claim 1, wherein the step of accessing guidelines for designing the structure includes the step of:

accessing guidelines associated with the system design.

6. The method of claim 1, wherein the step of accessing guidelines for designing the structure includes the step of:

accessing guidelines associated with the plurality of components and/or the element.

7. The method of claim 1, further including the step of:

automatically providing information about the designed system.

8. The method of claim 7, wherein the step of automatically providing information includes the step of:

providing at least one of: a three-dimensional drawing of the structure; a two-dimensional drawing of the structure; a list of elements and components; and a bill of material associated with at least one of the system, the element, and the components.

9. The method of claim 1, wherein the element includes a harness.

10. A computer-readable medium including instructions for designing a structure for routing a plurality of elements for connecting components, comprising the steps of:

establishing a system design including a plurality of components;
generating a wiring diagram associated with the system design,
wherein the wiring diagram includes the plurality of elements and the plurality of components;

accessing guidelines for designing the structure; and
automatically determining routing patterns in the structure for the plurality of elements based on the wiring diagram and the guidelines.

11. The computer-readable medium of claim 10, wherein the step of determining routing patterns includes the steps of:

determining one or more sets of one or more elements that can be bundled; and

determining a routing pattern in the structure for each bundle.

12. The computer-readable medium of claim 10, further including the steps of:

receiving one or more revised guidelines for designing the structure; and

determining a revised routing pattern in the structure for the plurality of elements based on the wiring diagram and the revised guidelines.

13. The computer-readable medium of claim 10, further including:

providing a schematic illustrating the structure and the determined routing patterns.

14. The computer-readable medium of claim 10, wherein the step of accessing guidelines for designing the structure includes the step of:
accessing standards associated with the system design.

15. The computer-readable medium of claim 10, wherein the step of accessing guidelines for designing the structure includes the step of:
accessing standards associated with the plurality of elements.

16. The computer-readable medium of claim 10, further including the step of:
automatically providing information about the designed structure.

17. The computer-readable medium of claim 10, wherein the step of automatically providing information includes the step of:
providing at least one of: a three-dimensional drawing of the structure; a two-dimensional drawing of the structure; a list of elements and components; and a bill of material.

18. The computer-readable medium of claim 10, wherein the structure includes a harness and the elements include wires.

19. A system for designing a system including an element, wherein the element connects a plurality of components, the system comprising:
a processor; and
a memory, wherein the memory includes

a computer-aided design module for establishing a system design and generating a diagram associated with the system design, wherein the diagram includes the element and the plurality of components;

one or more guidelines for designing the system; and

a routing design module for automatically determining routing patterns in the structure for the element based on the diagram and the guidelines.

20. The system of claim 19, wherein the routing design module is software designed to work with the computer-aided design module.

Q4 21. A system for designing a system including an element, wherein the element connects a plurality of components, the system comprising:
a routing design module configured to perform the following steps,
establishing a system design including the plurality of components;
generating a diagram associated with the system design, wherein the wiring diagram includes the element and the plurality of components;
establishing guidelines for designing the system; and
automatically determining a routing pattern in the system for the element based on the wiring and the guidelines.

22. A method of routing an element among a plurality of components, the method comprising:
establishing the plurality of components to be connected;
establishing routing guidelines; and

automatically determining a routing of the element to connect the plurality of components based on the routing guidelines.

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